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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,394	07/01/2003	Scott Donald Barnicki	71619	1526

7590 06/15/2004  
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EXAMINER

WITHERSPOON, SIKARL A

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/611,394	<b>Applicant(s)</b> BARNICKI ET AL.	
	<b>Examiner</b> Sikarl A. Witherspoon	<b>Art Unit</b> 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-92 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-92 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/01/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muthusamy et al (US 5,583,263) and further in view of Loewenberg et al (US 2,200,216).

Applicants claim a process for preparing a beta-hydroxy ketone or an alpha, beta-unsaturated ketone, by reacting an aldehyde with a ketone in the present of a catalyst comprised of an alkali metal or an alkaline earth metal hydroxide or alkoxide, as a solid or as a solution, wherein no more than 6% by weight water, based on the total of water provided and the water generated by the reaction, is present in the reaction mixture, and wherein the reacting is carried out at a reaction time of no more than 120 minutes.

Muthusamy et al teach a process of making ketones by aldol condensation of dimethyl ketone (acetone) with n-butyraldehyde (4-hydroxy-2-heptanone is produced). The reaction temperature is between 0 and 60° C. Basic catalysts such as sodium, lithium, calcium or magnesium hydroxide are used, and can be in a solid-state system or in a solution (col. 5, lines 50-60). The reaction is conducted for up to 120 minutes (col. 9 and 10, table 2).

The differences between Muthusamy et al and the present invention are that Muthusamy et al do not expressly teach a reaction mixture comprising no more than 6% water by weight, and does not teach the specific ratio of aldehyde to ketone reactant, and ratio of catalyst to aldehyde, as recited in the instant claims. Also, with the exception of the reaction wherein dimethyl ketone is reacted with n-butyraldehyde to produce 4-hydroxy-2-heptanone, Muthusamy et al teach the production of different ketones than those produced by the instant process.

With regard to the percentage of water found in the reaction mixture, the examiner finds that this limitation would have been obvious to a person of ordinary skill in the art. Muthusamy et al teach at col. 3, lines 61-64 that the reaction mixture comprising the resulting ketones formed from the condensation reaction is dehydrated prior to subsequent reaction. The extent to which said mixture is dehydrated will effectually determine the amount of water present in the reaction mixture. To that end, the examiner purports that it would have been obvious to a person of ordinary skill to modify the rate of dehydration of the reaction mixture in order to obtain the desired weight percentage of water present in said mixture for further reaction, as taught by Muthusamy et al.

The specific ratios of the reactants and catalyst would have also been obvious to a person of ordinary skill in the art, absent a showing of superior or unexpected results when using the claimed ratios, since a person ordinary skill in the art would modify such ratios to obtain optimal results in the condensation of the aldehyde and ketone to form the desired higher molecular weight ketone.

The fact that Muthusamy et al teach different aldehyde and ketone reactants and hence, different beta-hydroxy or alpha, beta-unsaturated ketone products is immaterial. In fact, Loewenberg et al teach a similar process wherein high-molecular weight unsaturated ketones are produced from the reaction of a ketone and aldehyde. See col. 1, lines 16-26 for an example of aldehyde and ketone reactants.

It therefore would have been obvious to a person of ordinary skill in the art to conduct an aldol condensation of ketones and aldehydes different from those that are taught in Muthusamy et al, since, based on the express teachings of both references, the process taught therein can be used to produce any high-molecular weight ketone from aldehydes and ketones having fewer carbon atoms than the ketone produced.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 571-272-0649. The examiner can normally be reached on M-F 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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